

**Experiment Number:** 60311 - 04

**Test Type:** 90-DAY

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** MICE/B6C3F1

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

Cobalt

**CAS Number:** 7440-48-4

**Date Report Requested:** 08/16/2012

**Time Report Requested:** 09:00:48

**First Dose M/F:** 03/07/05 / 03/07/05

**Lab:** BNW

F2\_M3

**NTP Study Number:** C60311  
**Lock Date:** 11/29/2005  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**Study Gender:** Both  
**TDMSE Version:** 2.6.0.0\_007  
**PWG Approval Date:** NONE

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

## P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE MALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
<b>Disposition Summary</b>						
Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Survivors						
Terminal Sacrifice	10	10	10	10	10	10
Animals Examined Microscopically	10	10	10	10	10	10
<b>ALIMENTARY SYSTEM</b>						
Esophagus	(10)	(0)	(0)	(0)	(0)	(10)
Gallbladder	(9)	(0)	(0)	(0)	(0)	(9)
Intestine Large, Cecum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(0)	(0)	(10)
Liver	(10)	(0)	(0)	(0)	(0)	(10)
Pancreas	(10)	(0)	(0)	(0)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(0)	(0)	(10)
Hyperkeratosis						1 (10%)
Stomach, Glandular	(10)	(0)	(0)	(0)	(0)	(10)
<b>CARDIOVASCULAR SYSTEM</b>						
Blood Vessel	(0)	(0)	(0)	(0)	(0)	(1)
Heart	(10)	(0)	(0)	(0)	(0)	(10)
<b>ENDOCRINE SYSTEM</b>						
Adrenal Cortex	(10)	(0)	(0)	(0)	(0)	(10)
Adrenal Medulla	(10)	(0)	(0)	(0)	(0)	(9)
Islets, Pancreatic	(10)	(0)	(0)	(0)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE MALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Parathyroid Gland	(4)	(0)	(0)	(0)	(0)	(6)
Pituitary Gland	(10)	(0)	(0)	(0)	(0)	(9)
Thyroid Gland	(10)	(0)	(0)	(0)	(0)	(10)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Coagulating Gland	(0)	(0)	(0)	(0)	(0)	(1)
Epididymis	(10)	(10)	(10)	(9)	(10)	(10)
Atrophy						10 (100%)
Exfoliated Germ Cell						10 (100%)
Hypospermia						10 (100%)
Vacuolization Cytoplasmic						9 (90%)
Preputial Gland	(10)	(0)	(0)	(0)	(0)	(10)
Prostate	(10)	(0)	(0)	(0)	(0)	(10)
Seminal Vesicle	(10)	(0)	(0)	(0)	(0)	(10)
Testes	(10)	(10)	(10)	(10)	(10)	(10)
Germinal Epithelium, Degeneration	2 (20%)				1 (10%)	10 (100%)

HEMATOPOIETIC SYSTEM

Bone Marrow	(10)	(0)	(0)	(0)	(0)	(10)
Lymph Node, Bronchial	(5)	(0)	(0)	(0)	(0)	(6)
Erythrophagocytosis						2 (33%)
Lymph Node, Mandibular	(4)	(0)	(0)	(0)	(0)	(8)
Lymph Node, Mediastinal	(1)	(0)	(0)	(0)	(0)	(5)
Lymph Node, Mesenteric	(10)	(0)	(0)	(0)	(0)	(10)
Lymphocyte, Necrosis	1 (10%)					
Spleen	(10)	(0)	(0)	(0)	(0)	(10)
Thymus	(10)	(0)	(0)	(0)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

## P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE MALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
<b>INTEGUMENTARY SYSTEM</b>						
Skin	(10)	(0)	(0)	(0)	(0)	(10)
<b>MUSCULOSKELETAL SYSTEM</b>						
Bone	(10)	(0)	(0)	(0)	(0)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(0)	(0)	(0)	(10)
<b>RESPIRATORY SYSTEM</b>						
Larynx	(10)	(10)	(10)	(10)	(10)	(10)
Metaplasia, Squamous		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Hemorrhage		1 (10%)		1 (10%)	7 (70%)	6 (60%)
Metaplasia, Osseous						1 (10%)
Alveolar/bronchiolar, Epithelium, Karyomegaly					10 (100%)	10 (100%)
Alveolus, Infiltration Cellular, Histiocyte		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Alveolus, Proteinosis					10 (100%)	10 (100%)
Bronchiole, Epithelium, Hyperplasia				10 (100%)	10 (100%)	10 (100%)
Bronchiole, Epithelium, Vacuolization Cytoplasmic		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active					8 (80%)	10 (100%)
Olfactory Epithelium, Degeneration		2 (20%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Olfactory Epithelium, Hyperplasia			1 (10%)	5 (50%)	2 (20%)	3 (30%)
Respiratory Epithelium, Degeneration			6 (60%)	9 (90%)	10 (100%)	10 (100%)
Respiratory Epithelium, Metaplasia, Squamous			2 (20%)	5 (50%)	10 (100%)	10 (100%)
Turbinate, Atrophy					8 (80%)	10 (100%)
Trachea	(10)	(0)	(0)	(0)	(0)	(10)
Erosion						1 (10%)

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04  
Test Type: 90-DAY  
Route: RESPIRATORY EXPOSURE WHOLE BODY  
Species/Strain: MICE/B6C3F1

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
Cobalt  
CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
Time Report Requested: 09:00:48  
First Dose M/F: 03/07/05 / 03/07/05  
Lab: BNW

---

B6C3F1 MICE MALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
------------------	---------	-------------	------------	-----------	---------	----------

---

SPECIAL SENSES SYSTEM						
Eye	(10)	(0)	(0)	(0)	(0)	(10)
Hemorrhage, Acute	1 (10%)					
Harderian Gland	(10)	(0)	(0)	(0)	(0)	(10)

---

URINARY SYSTEM						
Kidney	(10)	(0)	(0)	(0)	(0)	(10)
Nephropathy	1 (10%)					1 (10%)
Renal Tubule, Cyst						1 (10%)
Renal Tubule, Cyst, Multiple						1 (10%)
Urinary Bladder	(10)	(0)	(0)	(0)	(0)	(10)

---

\*\*\* END OF MALE \*\*\*

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

## P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE FEMALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
--------------------	---------	-------------	------------	-----------	---------	----------

**Disposition Summary**

Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Accidentally Killed				1		
Survivors						
Terminal Sacrifice	10	10	10	9	10	10
Animals Examined Microscopically	10	10	10	10	10	10

## ALIMENTARY SYSTEM

Esophagus	(10)	(0)	(0)	(1)	(0)	(10)
Gallbladder	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Cecum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(1)	(0)	(10)
Liver	(10)	(0)	(0)	(1)	(0)	(10)
Inflammation, Chronic Active	1 (10%)					
Pancreas	(10)	(0)	(0)	(1)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(1)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(1)	(0)	(10)
Stomach, Glandular	(10)	(0)	(0)	(1)	(0)	(10)

## CARDIOVASCULAR SYSTEM

Blood Vessel	(1)	(0)	(0)	(0)	(0)	(1)
Heart	(10)	(0)	(0)	(1)	(0)	(10)

## ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(0)	(0)	(1)	(0)	(10)
Adrenal Medulla	(10)	(0)	(0)	(1)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE FEMALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Islets, Pancreatic	(10)	(0)	(0)	(1)	(0)	(10)
Parathyroid Gland	(8)	(0)	(0)	(1)	(0)	(6)
Pituitary Gland	(10)	(0)	(0)	(1)	(0)	(10)
Thyroid Gland	(10)	(0)	(0)	(1)	(0)	(9)
<b>GENERAL BODY SYSTEM</b>						
None						
<b>GENITAL SYSTEM</b>						
Clitoral Gland	(7)	(0)	(0)	(1)	(0)	(7)
Ovary	(10)	(0)	(0)	(1)	(0)	(10)
Uterus	(10)	(0)	(0)	(1)	(0)	(10)
Endometrium, Inflammation	1 (10%)					1 (10%)
<b>HEMATOPOIETIC SYSTEM</b>						
Bone Marrow	(10)	(0)	(0)	(1)	(0)	(10)
Lymph Node, Bronchial	(6)	(0)	(0)	(1)	(0)	(7)
Lymph Node, Mandibular	(8)	(0)	(0)	(1)	(0)	(7)
Lymph Node, Mediastinal	(1)	(0)	(0)	(0)	(0)	(4)
Lymph Node, Mesenteric	(10)	(0)	(0)	(1)	(0)	(10)
Spleen	(10)	(0)	(0)	(1)	(0)	(10)
Thymus	(10)	(0)	(0)	(1)	(0)	(10)
<b>INTEGUMENTARY SYSTEM</b>						
Mammary Gland	(10)	(0)	(0)	(1)	(0)	(10)
Skin	(10)	(0)	(0)	(1)	(0)	(10)
<b>MUSCULOSKELETAL SYSTEM</b>						

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

## P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

B6C3F1 MICE FEMALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Bone	(10)	(0)	(0)	(1)	(0)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(0)	(1)	(0)	(10)
<b>RESPIRATORY SYSTEM</b>						
Larynx	(10)	(10)	(10)	(10)	(10)	(10)
Metaplasia, Squamous		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Emphysema						3 (30%)
Hemorrhage					8 (80%)	2 (20%)
Alveolar/bronchiolar, Epithelium, Karyomegaly					10 (100%)	10 (100%)
Alveolus, Infiltration Cellular, Histiocyte		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Alveolus, Proteinosis					10 (100%)	10 (100%)
Arteriole, Thrombosis				1 (10%)		
Bronchiole, Epithelium, Hyperplasia				10 (100%)	10 (100%)	10 (100%)
Bronchiole, Epithelium, Vacuolization Cytoplasmic		10 (100%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active				1 (10%)	10 (100%)	10 (100%)
Olfactory Epithelium, Degeneration		1 (10%)	7 (70%)	9 (90%)	10 (100%)	10 (100%)
Olfactory Epithelium, Hyperplasia				3 (30%)		
Respiratory Epithelium, Degeneration			1 (10%)	8 (80%)	10 (100%)	10 (100%)
Respiratory Epithelium, Metaplasia, Squamous				9 (90%)	10 (100%)	10 (100%)
Turbinate, Atrophy					10 (100%)	10 (100%)
Pleura	(1)	(0)	(0)	(0)	(0)	(0)
Infiltration Cellular, Mixed Cell, Focal	1 (100%)					
Trachea	(10)	(0)	(0)	(1)	(0)	(9)
<b>SPECIAL SENSES SYSTEM</b>						
Eye	(10)	(0)	(0)	(1)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion



Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:48

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

B6C3F1 MICE FEMALE	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Harderian Gland Hemorrhage	(10)	(0)	(0)	(1)	(0)	(10) 1 (10%)
<hr/>						
URINARY SYSTEM						
Kidney Nephropathy	(10) 1 (10%)	(0)	(0)	(1)	(0)	(10) 2 (20%)
Urinary Bladder	(10)	(0)	(0)	(1)	(0)	(10)

---

\*\*\* END OF REPORT \*\*\*

a - Number of animals examined microscopically at site and number of animals with lesion